APPENDIX C
SOAPA NEW MITIGATION MEASURES

SOAPA NEW MITIGATION MEASURES

This document summarizes new mitigation and monitoring to be conducted for the SOAPA project.

SINKHOLES AND SIMILAR KARST FEATURES

In the event a sinkhole should develop as a result of dewatering activities at the South Operations Area Project Amendment, Newmont shall, within one week of the discovery of the sinkhole, initiate consultation with BLM with regard to the repair of the sinkhole. Newmont shall undertake repair of the such karst features which may include, but is not limited to backfilling, recontouring, and seeding of the sinkhole, as soon as is practicable.

WATER RESOURCES

Three new piezometers will be installed in the bedrock aquifer to the east of the Project Area (**Figure C-1**) within two years of the Record of Decision. In addition, one existing bedrock well four miles south of Carlin, and two shallow piezometers near the Carlin Wetland, just east of Carlin, will be added to the monitoring network immediately. Two additional bedrock monitoring wells are planned to the east of the new bedrock monitoring wells. One of these wells would be installed if head in one of the two nearest piezometers to the west should decline by 20 feet in any given year, or by an absolute decline of 50 feet.

RIPARIAN, WETLANDS, AND WATERS OF THE U. S. AREAS

By December 31, 2003, fences to control livestock grazing will be constructed on the following six spring and seep sites (**Figure C-1**):

Palisade Spring
Chicken Springs
Little Jack Canyon Mouth Aspen Spring
Jack Creek Aspen Stand
Lower Jack Creek Spring
Spring Creek

Fencing will be coordinated with the Elko Land and Livestock Company to insure water remains available to livestock and will meet BLM specifications for sage grouse. Alternate water sources will be developed by Newmont where necessary to provide adequate water for livestock. If necessary, Newmont will apply for stock watering water rights with the Nevada State Engineer=s Office, for these water sources. Fencing will allow for increased growth and establishment of riparian vegetation and for improved hydrologic function of the associated springs.

TERRESTRIAL WILDLIFE

- Of the 533 acres available in the mitigation bank, 139 acres will be applied as mitigation for mule deer habitat permanently lost to the pit expansion of 139 acres. After application of the 139 acres, 394 acres will remain in the mitigation bank for mule deer habitat mitigation.

- As per consultation by BLM with any affected livestock grazing permittees/private land owners involved, the net wire fence located near the Stampede Ranch will be replaced by Newmont within two years of completion of the perimeter fence modifications. This fence replacement is mitigation for impacts to mule deer transition range **Figure C-2** shows the location of the net wire fence.

THREATENED, ENDANGERED, CANDIDATE AND SENSITIVE SPECIES

- Fence and control livestock grazing at a spring complex in the lower reaches of Jack Creek (also known as Lower Jack Creek Spring) and on Spring Creek as outlined in the mitigation for Riparian, Wetlands, and Waters of the U.S. Areas. These measures will improve habitat conditions for LCT.

- By December 2002, Newmont Mining Corporation will submit a draft evaluation of county road culverts for fish passage on Little Jack, Coyote, and Beaver Creeks to the BLM. Following consultation with BLM on the draft evaluation, Newmont Mining Corporation will submit a final evaluation report by March 31, 2003. If evaluations determine that culverts on Little Jack and Coyote Creeks are acting as barriers, Newmont will design replacement culverts for these streams by the end of 2003. On Beaver Creek, where fish passage is clearly a problem, Newmont will fund construction of a new culvert or other structure suitable for fish passage by December 2003 pending completion of the permitting process. Further evaluation of fish passage issues as well as replacement of the impassible culvert on Beaver Creek with a structure suitable for fish passage will help facilitate the overall strategy of establishing and LCT metapopulation in the Maggie Creek subbasin.

- Mitigate the permanent loss of 139 acres of sage grouse habitat due to pit expansion through off-site habitat enhancement. This enhancement will consist of mechanical or chemical manipulation or prescribed burning of mature stands of sagebrush (with greater than 15% shrub foliar cover) in a patchwork pattern, and reseeding those areas with an appropriate herbaceous seed mix to help improve forage diversity and cover for sage grouse. The priority of this action will be habitat enhancement for affected sage grouse populations within the T Lazy S Allotment. The 139 acres will be treated in this manner on a one-time basis, within three years of the issuance of the Record of Decision.

- Predatory bird perch deterrents will be installed on all power lines to be built as a result of SOAPA. This action would mitigate the effects of potential predatory bird perch areas within sage grouse habitat.

LONG TERM MONITORING

Long term ground and surface water monitoring associated with water level recovery from the dewatering program at the South Operations Area Project will be conducted to assure that mitigation measures described in the SOAP Mitigation Plan as amended in SOAPA would be carried out, if necessary.

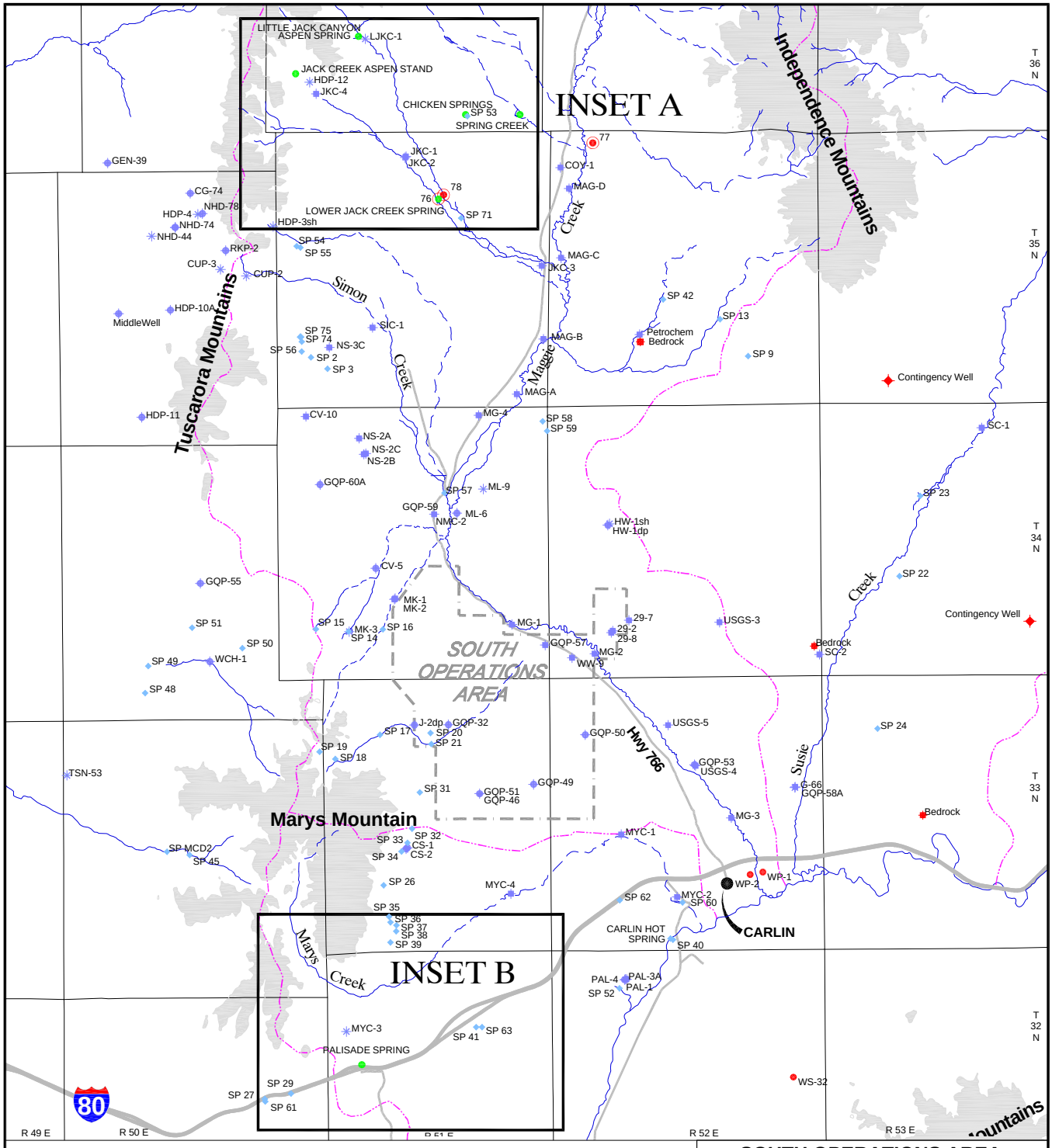
A Trust Fund will be established to cover long term groundwater and surface water monitoring. If Newmont defaults on its commitment to continue ground and surface water monitoring upon cessation of dewatering, this fund would be utilized by BLM to implement the following plan:

Long Term Monitoring Plan

During the first two years of this plan, which will begin immediately upon cessation of dewatering at the Gold Quarry mine, groundwater elevation monitoring shall be conducted on a quarterly basis. The piezometers included within this plan are shown on **Figure C-3**; Groundwater Monitoring Locations. Also included in this monitoring network will be any wells added to the Maggie Creek Basin Monitoring Plan (e.g., **Figure C-1**) prior to cessation of dewatering. Surface flow monitoring shall be conducted quarterly; **Figure C-4**; Surface Water Monitoring Locations shows the locations of the surface water monitoring sites. A limited number of springs will be monitored on an annual basis (**Figure C-5**), in the Fall of each year. The data collected by this monitoring program will be compiled into an annual report and submitted to BLM and the data will be submitted in a mutually acceptable electronic format, whenever requested by the BLM.

At the conclusion of the first two years of monitoring, the monitoring program will be reduced by 50%. BLM will review the data to determine which monitoring sites will be retained. The reduced network will be monitored quarterly for an additional eight years. Annual reports will be prepared and submitted to BLM and the data will be submitted, whenever and in whatever format requested by the BLM.

After the initial ten years of monitoring, the monitoring network will again be reduced. **Figure C-5**, Proposed Long Term Monitoring Network, shows the extent of this network. In addition to the locations shown on **Figure C-5**, BLM will select five additional piezometers from the remaining groundwater water elevation monitoring network to retain in the final monitoring network. Monitoring will continue until impacted water levels recover to within 90% of their pre-dewatering elevation. This recovery will be measured by the rise of the pit lake surface to within 90% of the pre dewatering level for the carbonate aquifer in the pit area.



LEGEND

- Hydrologic Basins
- Perennial Streams
- Intermittent Streams
- Mountain Ranges
- New Shallow Well
- New Bedrock Well
- Siltstone Monitoring Well
- Carbonate Monitoring Well
- Springs to be Fenced
- Springs Added to Monitoring Network
- Surveyed Springs
- Contingency Well
- Carlin Formation Well

N

0 1 2 3 4 5 6

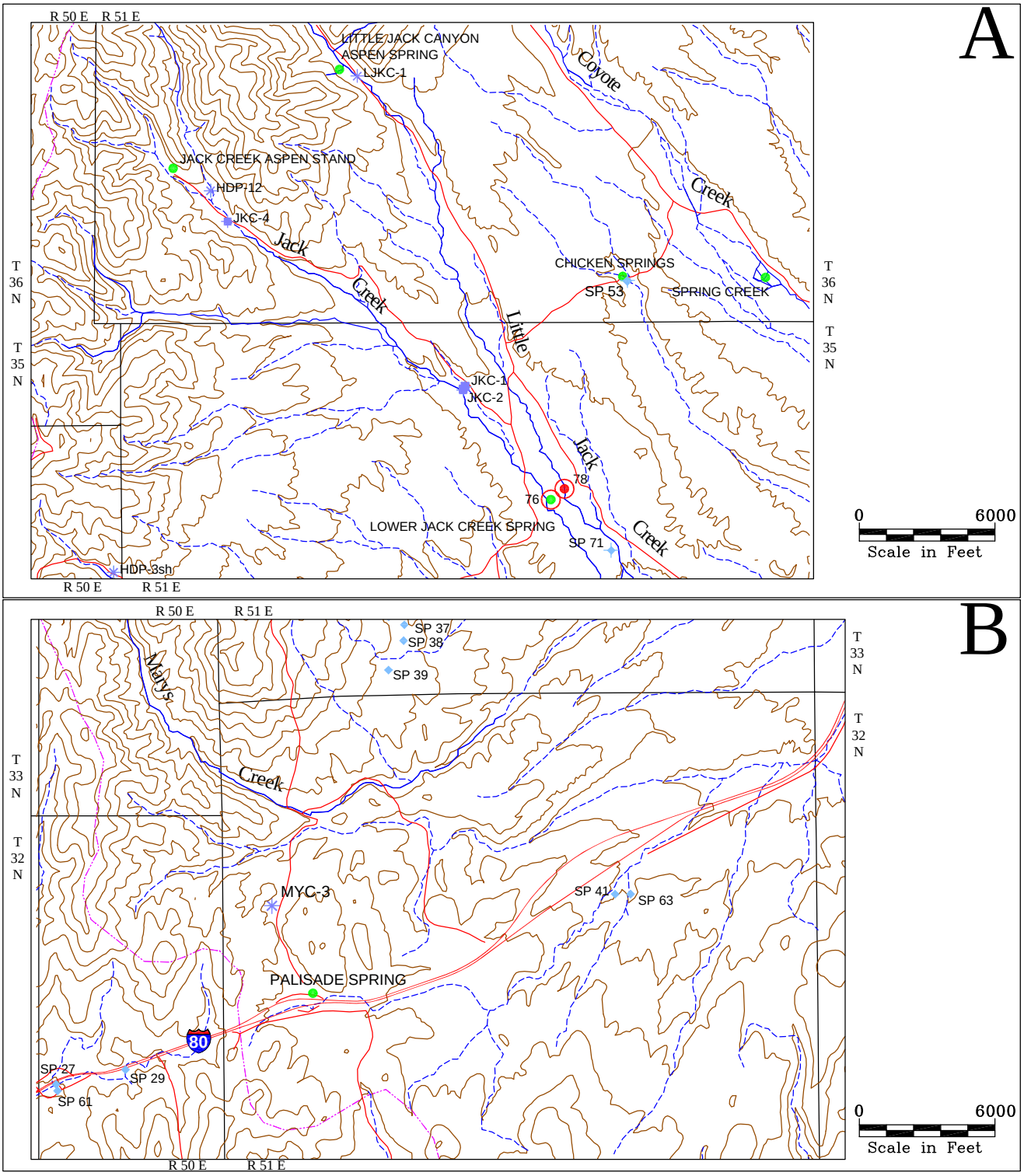
Scale in Miles

Source: BLM, 1993.

SOUTH OPERATIONS AREA PROJECT AMENDMENT

FIGURE C-1
EXISTING AND PROPOSED GROUND WATER MONITORING WELLS, SPRING MONITORING SITES, AND SPRINGS TO BE FENCED

MINE AREA: SOUTH AREA	
DATE: 08/27/01	ACAD FILE: FigC-1a.dwg
SCALE: AS NOTED	DRAWN BY: EC, MODIFIED BY RC



LEGEND

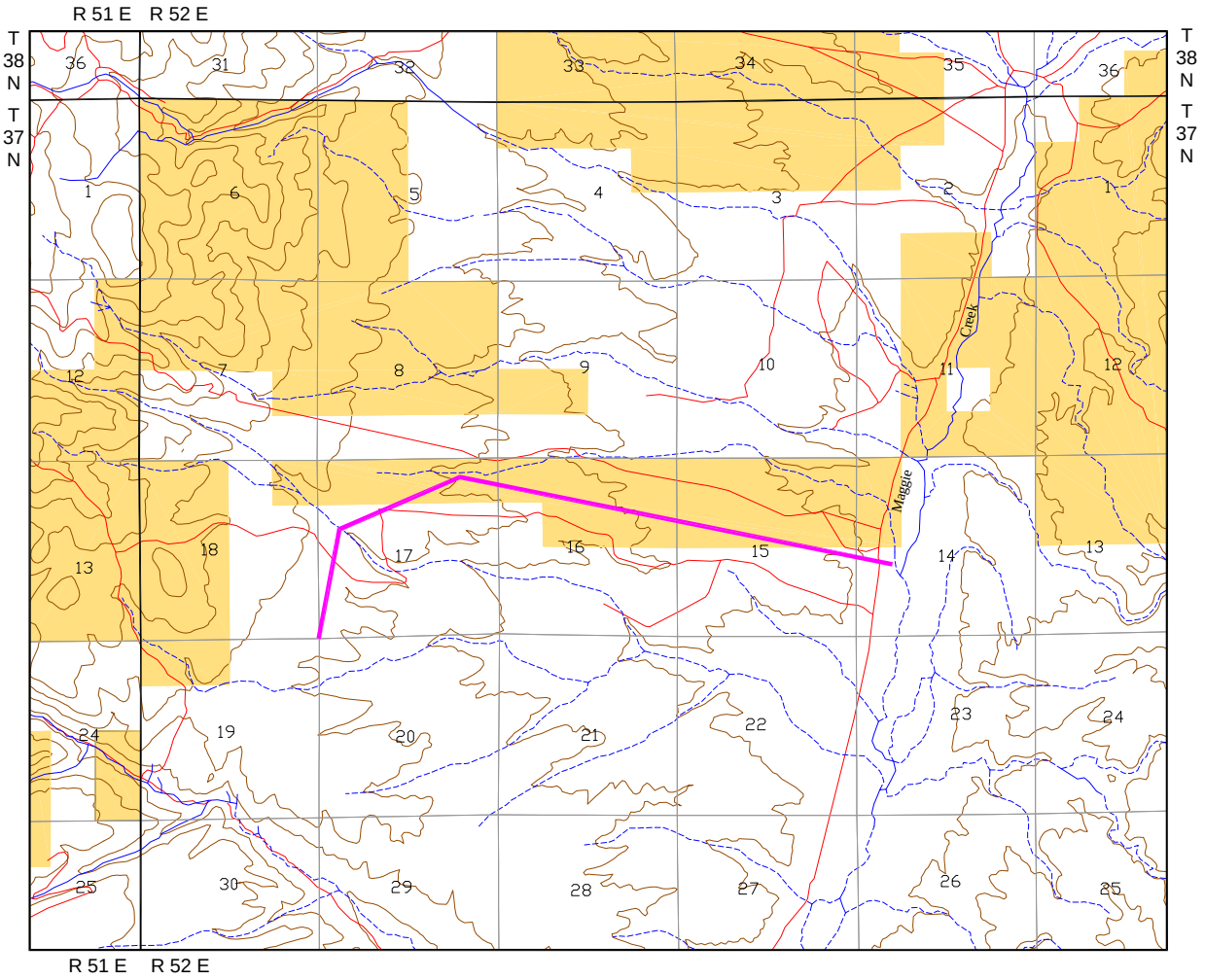
- Hydrologic Basins
- Roads
- Perennial Streams
- Intermittent Streams
- Carlin Formation Well
- Siltstone Monitoring Well
- Springs to be Fenced
- Springs Added to Monitoring Network
- Surveyed Springs

Source: BLM, 1993.

SOUTH OPERATIONS AREA PROJECT AMENDMENT

FIGURE C-1
INSET A & B

MINE AREA: SOUTH AREA	
DATE: 10/22/01	ACAD FILE: FigC-1.DWG
SCALE: AS NOTED	DRAWN BY: EC, MODIFIED BY: RC



LEGEND

- Net Wire Fence
- Roads
- Perennial Streams
- Intermittent Streams
- BLM
- Private

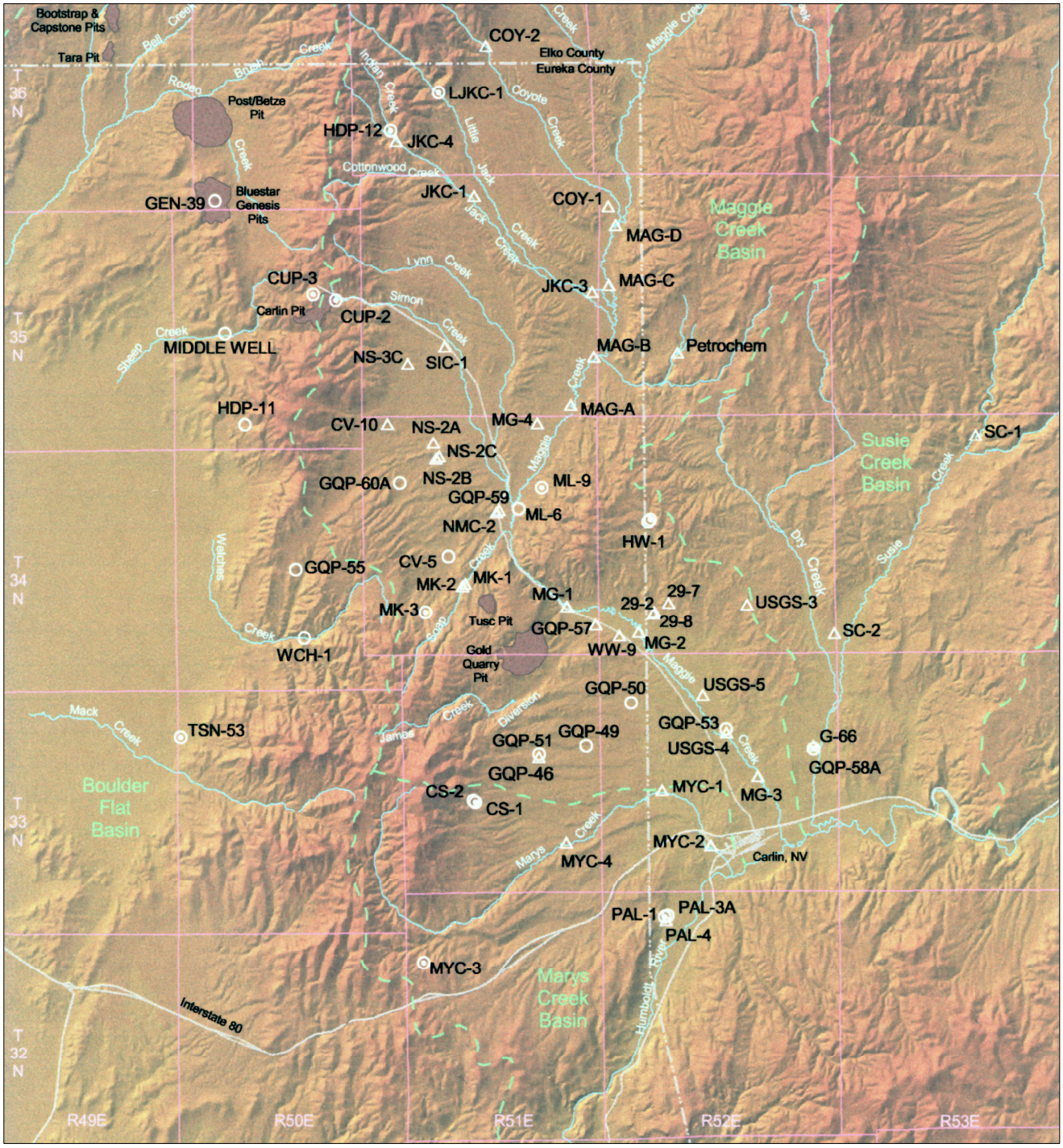
0 5000 10000

Scale in Feet

SOUTH OPERATIONS AREA PROJECT AMENDMENT

FIGURE C-2
NET WIRE FENCE

MINE AREA: SOUTH AREA	
DATE: 10/31/01	ACAD FILE: 610 FENCE.DWG
SCALE: AS NOTED	DRAWN BY: EC, MODIFIED BY: RC



LEGEND

- Alluvium Piezometer
- Carbonate Piezometer
- Siltstone Piezometer

N

0 2 4

Scale in Miles

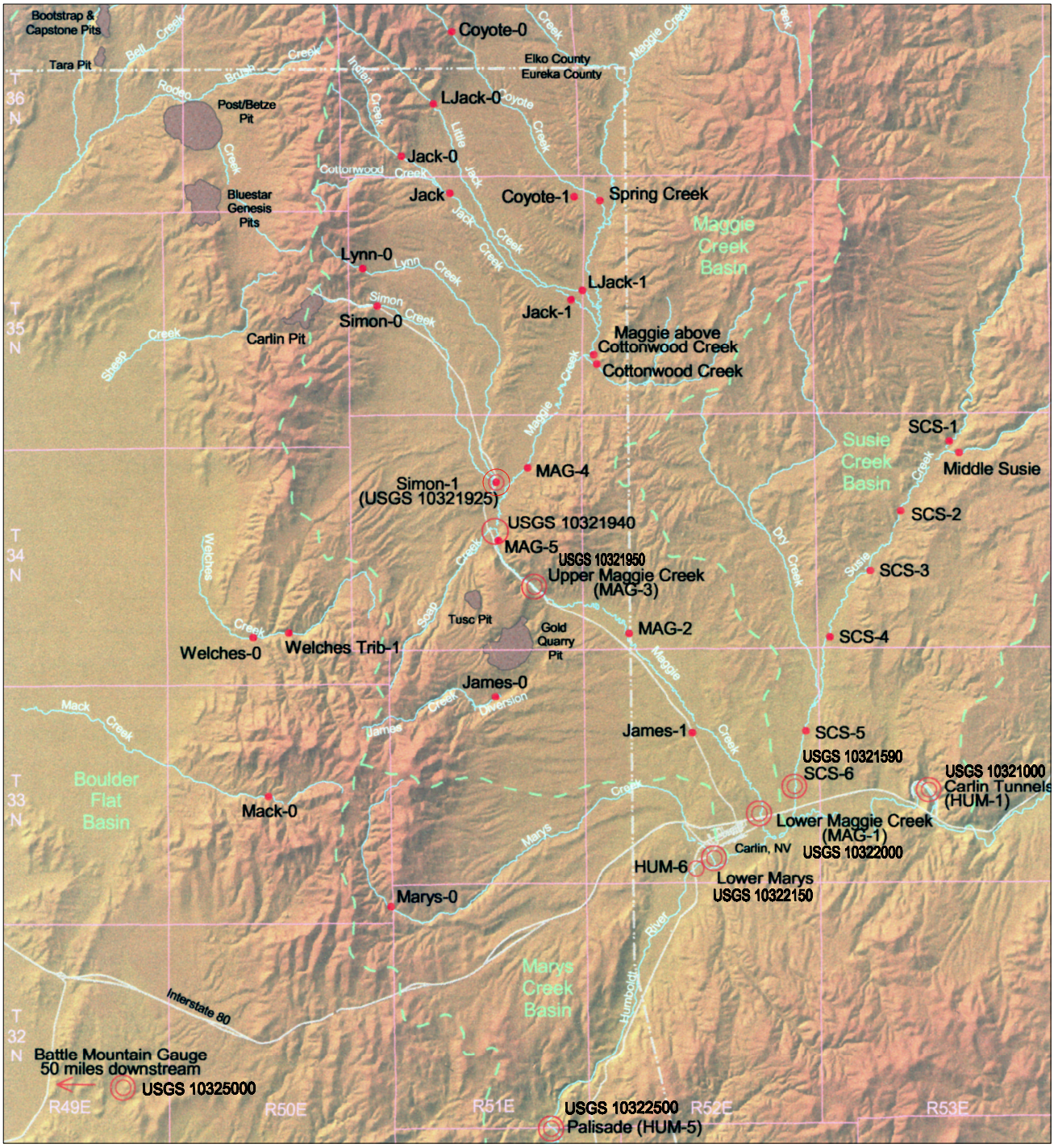
Source: Image courtesy of Newmont Mining Corporation

SOUTH OPERATIONS AREA PROJECT AMENDMENT

FIGURE C-3

GROUNDWATER MONITORING LOCATIONS

MINE AREA: SOUTH AREA	
DATE: 2/15/02	ACAD FILE: FigC-3,C-4,C-5.DWG
SCALE: AS NOTED	DRAWN BY: ETC



LEGEND

- Flow Measurement
- Water Quality Sampling
- USGS Gauge

N

0 2 4

Scale in Miles

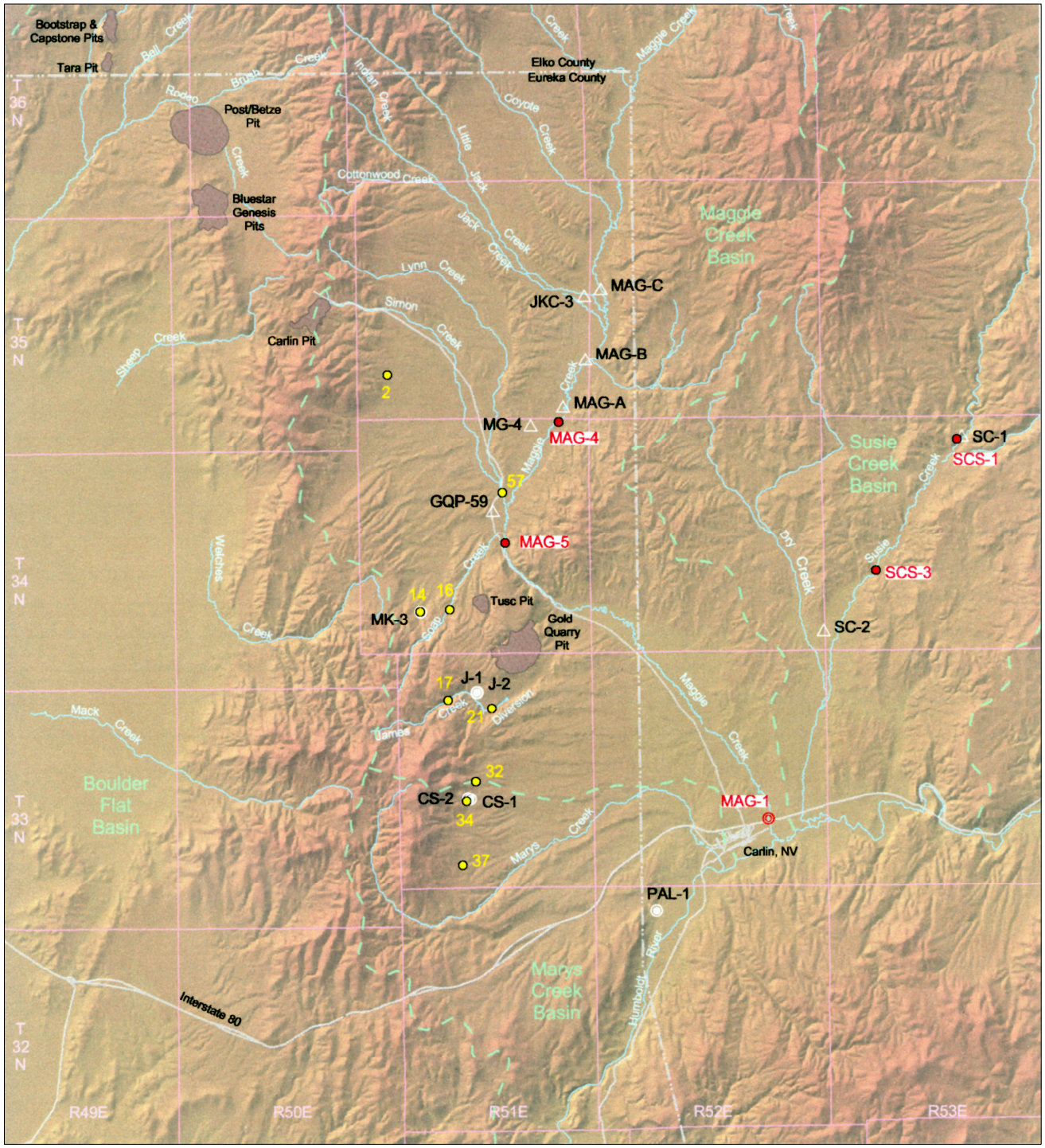
Source: Image courtesy of Newmont Mining Corporation

SOUTH OPERATIONS AREA PROJECT AMENDMENT

FIGURE C-4

SURFACE WATER MONITORING LOCATIONS

MINE AREA: SOUTH AREA	
DATE: 2/15/02	ACAD FILE: FigC-3,C-4,C-5.DWG
SCALE: AS NOTED	DRAWN BY: ETC



LEGEND

- Carbonate Piezometer
- Siltstone Piezometer
- Alluvial Piezometer
- Spring
- USGS Gauge
- Flow Measurement Site

N

0 2 4

Scale in Miles

Source: Image courtesy of Newmont Mining Corporation

SOUTH OPERATIONS AREA PROJECT AMENDMENT

FIGURE C-5

PROPOSED LONG-TERM MONITORING NETWORK

MINE AREA: SOUTH AREA	
DATE: 2/15/02	ACAD FILE: FigC-3,C-4,C-5.DWG
SCALE: AS NOTED	DRAWN BY: ETC

APPENDIX D
SOAP 1993 MITIGATION PLAN REVISIONS

SOAP 1993 MITIGATION PLAN REVISIONS

This section summarizes revisions to the SOAP 1993 Mitigation Plan.

The monitoring program for SOAPA will be based on a revised mitigation and monitoring plan. The revised plan has been formulated between the BLM and Newmont based on newly predicted potentially impacted areas. BLM and Newmont have jointly decided upon the need for and location of any additional monitoring wells, spring and seep sites, and surface water stations. Mitigation measures would likely be the same as specified in the 1993 plan (BLM, 1993) including:

I. RIPARIAN AND WETLAND HABITAT

B. RIPARIAN AND WETLANDS MITIGATION PROGRAM

Vegetation Management Plan

Controlled Grazing Zone (page 10)

Delete the requirement that controlled grazing zones will be rested every third year. For the Lower North Native Pasture, delete the requirement that grazing be completed no later than June 30 of each grazing season in years that it is grazed.

Rationale: With the exception of the Lower North Native Pasture, none of the pastures identified support riparian habitats. Standard BLM upland management practices including deferment and establishment of proper use levels is expected to maintain these areas in good condition. The Lower North Native Pasture supports riparian habitat which warrants retention of the rest requirement and the requirement for improvement or maintenance of good stream and riparian habitat conditions. The restriction for early season only grazing is deleted since it may be advantageous to include a combination of early season and fall grazing treatments in different years for the benefit of uplands as well as riparian areas. The requirement that any grazing system implemented must improve or maintain good stream and riparian habitat conditions remains unchanged.

In-Stream Structure Test Project (page 11)

This requirement is dropped.

Rationale: The need to construct artificial stream habitat enhancement structures along Maggie Creek has not been demonstrated. Rather, natural recovery processes have resulted in excellent improvement of aquatic habitat conditions.

Woody Planting (page 12)

The requirement for planting approximately 100 saplings of a Populus species along middle Maggie Creek or another location is deleted.

Rationale: Much of middle Maggie Creek is now characterized by extensive wet meadow/pond complexes as a result of beaver activity and is not suitable for this type of planting.

II. WATER RESOURCES

A. IMPACTS ON GROUNDWATER LEVELS

1. Groundwater Monitoring Network (page 20-22)

Table 3-20 of the FEIS supercedes Table II-1 of the 1993 Mitigation Plan. Figure 3-6 of the FEIS supercedes Figure II-1 of the 1993 Mitigation Plan.

Rationale: Monitoring wells have been added to improve the network, and some have been removed from the 1993 list, due to being mined out or from other failure.

3. Groundwater Monitoring and Reporting (page 23)

The requirement for changing any groundwater monitoring to a weekly basis is dropped.

The requirement for quarterly groundwater monitoring reports (Maggie Creek Basin Monitoring Plan) is changed to twice annually; one report will cover October through March and the second will cover April through September. Monthly piezometer hydrographs will continue to be supplied to BLM. Comprehensive electronic water level files will be provided to the BLM with the monitoring reports, and at any time requested by the BLM.

Recalibration of the MINEDW (Carlin Trend) groundwater model is changed to once every two years beginning 2002. The recalibration requirement will terminate upon cessation of Newmont Mining Corporation's dewatering activities at SOAPA and the Leeville Project.

Rationale: Changes to the groundwater levels in porous media aquifers of low to moderate transmissivity do not occur quickly enough to justify weekly monitoring, quarterly monitoring reports, or an annual recalibration of the groundwater model.

4. Funding for Elko District Staff Hydrologist (page 23)

The contribution towards a BLM staff hydrologist is changed in amount and will include partial funding for a wildlife biologist.

(a) Newmont Mining Corporation will make a total initial payment of $75,000 during calendar year 2003 to provide salary and administrative overhead for two positions: a BLM staff hydrologist and a biologist.

(b) BLM can request additional funding during a calendar year if BLM projects that spending for salary and administrative overhead will exceed the initial payment of $75,000, but additional payment cannot exceed that maximum payment schedule outlined below.

(c) If, at the end of the BLM's fiscal year, funds remain from the initial payment of $75,000 or subsequent payments, those funds will be applied to the following year and Newmont Mining Corporation will make payment to bring the funding account back to the $75,000 level.

(d) By October 1st of each year the funding account will be rebalanced to $75,000 with additional funds supplied by Newmont Mining Corporation. Additional payments will be due by February of the next calendar year.

The maximum combined funding level payable by Newmont Mining Corp. to BLM will be as follows:

Year	Amount
2003	$97,000
2004	$102,000
2005	$107,000
2006	$112,500
2007	$118,000
2008	$124,000
2009	$130,300
2010	$136,800
2011	$143,600
2012	$150,800

If BLM determines that funding for the staff hydrologist and biologist should continue, this agreement will allow for an additional five years of funding. The maximum funding level for the final five years will be:

Year	Amount
2013	$158,400
2014	$166,300
2015	$174,600
2016	$183,000
2017	$192,500

Rationale: This scheme, rather than a flat sum, will keep pace with inflation. It also provides for biological monitoring, which was lacking in the 1993 Monitoring Plan.

B. SEEP AND SPRING MITIGATION

2. Monitoring of Potential Impacts (page 24-26)

Springs will only be monitored in the fall. Group 1 Springs 3, 54, 55, 56, 58, and 59 and Group 3 Springs 20, 26, 31, 33, 35, 36, 38, and 39 are removed from the survey because of historically

negligible flow in the fall. All of the other springs (Group 1 Springs 2 and 57, Group 2 Springs 14 and 16, and Group 3 Springs 17, 21, 32, 34, and 37) would be monitored during the fall survey, including field parameters for the springs with flow.

Rationale: Monitoring of springs in the Spring, when conditions are typically wet, does not provide any useful information on groundwater conditions and base flow. Only in the Fall, when flow is at its lowest, is such information useful.

GQP-59 replaces NMC-2 as a trigger well for Group 1 Springs. The trigger water elevation for the Group 1 springs will be 5132 feet.

Rationale: Well NMC-2 is too deep (1000 feet) and has a screen that is much too long to be an effective monitoring site for any direct relavance to surface waters. Well GQP-59 has a shallower screen depth (55 to 65 feet) and is more appropriate for surface water monitoring.

3. Spring and Seep Mitigation (page 26)

Table II-2 of the 1993 Mitigation Plan is superceded by Table II-2 in Appendix A of the FEIS.

Table II-2
Mitigation of Potentially Impacted Springs and Seeps

Group	Location[1] TN/RE-Section-3,3	Newmont Inventory No. [2]	Description [3]	Mitigation
Springs Within 10 ft. Drawdown Contour and Not Adjacent to Spring Domains				
1	35/51-18-SE,SE	**55**	Simon Creek tributary; <1 gpm	Guzzler
1	35/51-30-SE,SE	Spring 2	Pond at base of spring; 1 gpm on BLM spring;	4-inch well
1	35/51-32-NW,NW	Spring 3	Group of 2 springs and pond; <1gpm	4-inch well
1	34/51-10-NW,SE	**57**	Series of Springs feeding wet meadow; 20-30 gpm	4-inch well
Springs Adjacent to Spring Domain Boundaries				
1	35/51-18-SE,NW	**54**	Simon Creek tributary; <1 gpm	Guzzler
1	35/51-30-NE,SE	**56**	On BLM spring list;	Guzzler
1	34/5**2**-6-NW,SW	**JC5**	Group of springs on hillside; <1 gpm;	4-inch well (co-located)
1	34/5**2**-6-SW,NW	**JC4**	Spring leading to meadow; 1 gpm;	4-inch well (co-located)
2	34/51-29-SW,SE	Spring 14	Series of springs flowing to 3 ponds; 20 gpm;	4-inch well
2	34/51-33-NW,NW	Spring 16	Seep on hillside; pond 3-mile downstream; <1 gpm	
3	35/51-9-NE,NE	**JC1**	Spring in channel near James Creek; 2-3 gpm	2-inch well
3	33/51-10-NW,SW	**JC2**	Series of springs near James Creek; PWR; <1 gpm	Guzzler
3	33/51-10-SE,NW	**JC3**	Hillside spring; <1 gpm	
3	33/51-10-NE,NW	Spring 20	Altered spring on top of hill; 2-3 gpm	Guzzler
3	33/51-10-SW,NW	Spring 21	3 springs flowing to James Creek; PWR; 30-40 gpm	6-inch well
3	33/51-15-SW,NW	Spring 31	Willow grove and meadow; 1-2 gpm	2-inch well

Table II-2
Mitigation of Potentially Impacted Springs and Seeps

Group	Location[1] TN/RE-Section-3,3	Newmont Inventory No. [2]	Description [3]	Mitigation
3	33/51-21-NW,NE	Spring 32	<1 gpm	
3	33/51-21-SE,NE	Spring 33	1 B 3 gpm	Guzzler
3	33/51-21-SW,SE	Spring 34	Cherry Spring; artesian spring; 2 ponds; 1+ gpm	2-inch well
3	33/51-28-SE,NW	Spring 26	Seep at confluence of 2 drainages; <1 gpm	Guzzler
3	33/51-33-NE,NW	Spring 35	Seep on hillside; < 1 gpm	
3	33/51-33-NE,NW	Spring 36	Seep on hillside; < 1 gpm	Guzzler
3	33/51-33-SE,NW	Spring 37	Seep on hillside; < 1 gpm	
3	33/51-33-SW,NE	Spring 38	2 hillside springs flowing to breached pond; 2-3 gpm	2-inch well
3	33/51-33-NW,SE	Spring 39	Seep draining to pond; < 1 gpm	

Rationale: Since monitoring began, many of the springs have shown virtually no flow in the fall. Therefore, there is no purpose to be served by continued monitoring at those sites.

C. STREAMFLOW MITIGATION

2. Surface Water Monitoring (page 30)

Figure 3-2 of the FEIS supercedes Figure II-2 of the 1993 Mitigation Plan. Monitoring on the Humboldt River will be conducted only at the Carlin Gage, Palisade Gage, and Battle Mountain Gage.

Flow measurements at the specified monitoring locations will be taken as close as practicable to those locations, shown on Figure 3-2 of the FEIS. These data will be included in the Maggie Creek Basin Monitoring Plan which will be prepared twice per year.

Rationale: Water quality at the several monitoring sites does not change significantly through the section. Therefore, fewer surface water monitoring sites are necessary. Flow measurement sites are made more flexible, since local conditions (beaver dams, vegetation, etc.) often render a discrete site unmeasureable.

3. Mitigation Measures for Specific Streams and Rivers (page 32-33)

(a) Maggie Creek (page 32)

GQP-59 replaces NMC-2 as an augmentation trigger monitoring well.

Consultation with the BLM regarding the need for streamflow augmentation will be initiated if water levels in GQP-59 fall below the 5,139.0 elevation or if water levels in MG-4 fall below the 5,191.5 elevation and flow in Maggie Creek at monitoring points MAG-4 and MAG-5 fall below 2 cfs. These elevations are derived from the average yearly variation below the lowest recorded level in the well measured before December 2001. Consultation will include the U.S. Fish and Wildlife

Service. At that time it will be determined whether it is appropriate to augment, to develop offsite mitigation, or if any action is required at all.

Rationale: There has been a need to revise the consultation/augmentation triggers since monitoring began in 1993. The triggers were designed around the piezometer/streamflow levels, but monitoring has shown that at some locations (e.g., MAG-A) the water table is normally below the thalweg of the stream, implying that augmentation may be triggered by the natural condition. Therefore, since nine years of data are now available, it was deemed superior to base the need for consultation and possible augmentation on a drop in baseflow relative to the historical record.

E. STREAM CHANNEL STABILITY

2. Steam Channel Stability Mitigation Measures (page 39)

The requirement for a 110-acre polishing wetland is dropped.

Rationale: The polishing wetland was designed to capture excess sediment resulting from mine discharge. This has proved to be unnecessary.

3. Monitoring (page 39)

Inspection of the stabilization structures and vegetation placed in Maggie Creek channel will occur after a flow event of 300 cfs is recorded at the USGS gaging station (MAG-1) near the town of Carlin. This inspection will occur within three (3) months of the event.

Rationale: Periodic inspections have shown the structures to be stable. They were designed for 300 cfs, and inspection after lower flow events has proven unnecessary.

IV. THREATENED, ENDANGERED, CANDIDATE, AND SPECIES OF SPECIAL CONCERN

B. MITIGATION MEASURES (page 46)

3. Delete the requirement for maintenance and monitoring associated with the Lynn Creek ponds.

Rationale: The ponds on Lynn Creek washed out in 1993.

4. Delete fencing requirement for the aspen grove containing the goshawk nest site on the west fork of Cottonwood Creek.

Rationale: Field surveys conducted in 1994 indicated that fencing is unnecessary. Continued riparian monitoring supports this conclusion.

6. Other Mitigation Measures (page 58)

All power lines to be built will be raptor-proof to avoid electrocution of raptors and reduce predation of sage grouse.

Rationale: Without effective anti-perching devices, power lines would afford more perch sites for raptors and other predatory bird species such as ravens. New structures afford predatory birds perching and nesting locations where they were previously absent or limited which favors territory-based expansion and increase of predatory bird populations. Ravens and golden eagles in particular are significant predators on sage grouse, small mammals, and young of large mammals including mule deer and pronghorn antelope.

VI. SOILS, VEGETATION, AND VISUAL RESOURCES

C. ENHANCED RECLAMATION TECHNIQUES

2. Intensified Test Plot Program (page 60)

This program is deleted and concurrent reclamation is used as test plots.

Rationale: Since 1993, successes have been achieved with concurrent reclamation that obviate the need for test plots.

4. Implementing Landscape Considerations (page 65)

Delete the requirement for a landscape architect.

Rationale: Concurrent reclamation at Gold Quarry and other mines in the area demonstrates that qualified mine personnel can design a reclaimed waste dump that blends with surrounding topography.

5. Open Pit Habitat Enhancement for Raptors and Additional Reclamation (page 65)

The requirement for small overhangs or alcoves on the pit walls to provide raptor habitat is dropped.

Rationale: Pit walls are generally unstable; any small overhangs or alcoves artificially created for enhancement of raptor habitat would likely only be temporary. Raptors generally will select sites, such as those to perch or nest, where they find suitable areas on the pit walls. These sites would change with various factors including dynamic pit wall features and conditions. Also, the pit walls are relatively unstable causing a safety concern.

APPENDIX A

MAGGIE CREEK WATERSHED RESTORATION PROJECT MONITORING PROCEDURES

MONITORING PROCEDURES

Checklist (page 68)

Both lotic (flowing water) and lentic (standing water) checklists will be used where applicable. Add: 10. Jack Pastures and 11. Simon Creek

Rationale: Different checklists are applicable for different kinds of riparian habitats depending on wether the stream or riparian system is supported by flowing water (lotic) or standing water (lentic). Note also, the lotic checklist has been updated since development of the 1993 Mitigation Plan. Stream reaches 10 and 11 are added since both support important or potentially important fisheries stream channels. Currently these areas are not monitored.

Detailed Riparian and Stream Monitoring

Evaluation Criteria - Stream Reaches 1, 2, and 3 (page 69)

Add reaches 9, 10, and 11.

Rationale: These reaches need to be included in the detailed riparian and stream monitoring. Reach 9 (the upper reach of lower Maggie Creek below the Narrows (Pasture H-7)) represents a lotic rather than a lentic system.

Width:Depth Ratio (page 70)

The standards to be met are either a maximum ratio of 15 to 20:1 depending on stream type where applicable. Sites where this standard is not applicable include stream channels altered by beaver dams.

Rationale: Data collected to date show a width:depth ratio of 15:1 may be unattainable for certain streams including Rosgen B channel types. In addition, beaver dams often result in high stream width:depth ratios although habitat conditions are clearly improving.

Riparian Zone Width (page 70)

Revise as follows: The width will be measured separately for the right and left banks. Riparian zone width will be stratified into two classes: herbaceous basal cover and woody canopy cover less than 50 percent and herbaceous basal cover and woody canopy cover greater than 50 percent.

Rationale: Data collected to date show it necessary to stratify the riparian zone based on cover of riparian plant species. In some cases, natural limits to hydrologic expansion were found to limit riparian zone expansion. However, cover of riparian plants within a given area typically increases as habitat conditions improve. Stratification of riparian zone widths in the above manner is also consistent with standard BLM stream survey techniques.

Informational Monitoring – Stream Reaches 1, 2, and 3

Temperature (page 71)

Temperature will be monitored using thermographs placed in Lahontan cutthroat trout habitat at key locations mutually agreed upon by Newmont and BLM. Data will be recorded at one to two hour intervals between early June and mid September. Thermograph monitoring will be conducted at least once every three years.

Rationale: Temperature information on LCT streams in the MCWRP area is lacking. Installation of thermographs will allow for establishment of baseline conditions in 2001.

Photography (page 71)

Change monitoring intervals from five to ten years. Change scale from 1:6,000 to 1:24,000 or other scale mutually agreed upon by Newmont and the BLM. Additional photography may occur annually in the years following livestock reintroduction.

Rationale: Changes detectable from aerial photography are generally more long term in nature. The information collected as part of the detailed riparian and stream monitoring is sufficient to assess short-term changes in habitat conditions. A scale of 1:24,000 may be more appropriate for a comprehensive evaluation of changes over a broad geographical area.

Wetland Plant Cover - Stream Reaches 4 Through 9 (page 71)

Change Reach 9 to 8.

Rationale: As indicated above, reach 9 (the upper reach of lower Maggie Creek below the Narrows) is more lotic than lentic in nature. The wetland plant cover criteria was developed for lentic environments.

Reporting Procedures (page 73)

Change reporting requirements for draft reports from within one month of the date of the field survey to October 31st of the year field inventories are completed. All final stream and riparian monitoring reports will be submitted to BLM by December 31st of the year field inventories are completed.

Rationale: Changes represent a more reasonable time frame for completion of reports.

APPENDIX B

MAGGIE CREEK
STREAMFLOW AUGMENTATION PLAN

STREAMFLOW AUGMENTATION PLAN (Page 79)

Consultation would be triggered if the water level in any one of the wells; MAG-A, MAG-B, MAG-C, MG-4, GQP-59, or JKC-3 falls below a level equal to the average yearly variation below the lowest recorded level in the well measured before December 2001. These trigger levels would equate to 5205.5 feet for MAG-A, 5239.0 feet for MAG-B, 5286.5 feet for MAG-C, 5191.5 feet for MG-4, 5139.0 feet for GQP-59, and 5287 feet for JKC-3.

Cessation of Maggie Creek flow augmentation will occur when the seasonal low water levels return to the trigger elevation of the piezometer that triggered augmentation.

Rationale: This scheme of relating streamflow record to consultation on streamflow augmentation is related to the fact that there is more data available on the normal relationship between the water table and Maggie Creek. This makes it possible to more accurately make a distinction between dewatering effects and normal fluctuations related to weather cycles.

APPENDIX C

SUSIE CREEK
STREAMFLOW AUGMENTATION PLAN
(page 85-87)

All measurement of flow in Susie Creek for mitigation purposes will be measured as close to the monitoring location as practicable.

Rationale: Backwater behind beaver dams or conditions of thick vegetative growth renders flow unmeasurable at some locations.